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# Human Remains from 41BW5, the Roseborough Lake Site

*Diane E. Wilson*

## Introduction

The analysis of human remains from the Roseborough Lake site (41BW5) provided in this article is a description of skeletal material collected or salvaged from this disturbed archaeological site in Bowie County, Texas. The material is presented here as an aid to future investigations and is compared with previously studied human remains from the region. Data was collected following standard techniques outlined in the Texas A&M University, Physical Anthropology Laboratory Data Form and those presented in Buikstra and Ubelaker (1994). The poor state of preservation and fragmentary nature of the remains limited the amount of information that could be recovered.

The Roseborough Lake Site (41BW5) has had a history of archaeological investigation, collection, agricultural destruction, and flooding. It is located near an oxbow lake formed by a meander of the Red River in Bowie County in proximity to several well-known Caddo sites. The site contains an Early Historic Caddo component as well as evidence that the site may have also been Benard de la Harpe's Nassonite Post (Gilmore 1986; Miroir et al. 1973) or a different French outpost (Wedel 1978).

In the late 1930s the site was recorded by the University of Texas and described as having nine exposed burials (Gilmore 1986). All were described as having glass beads and oriented in an east-west direction. Two burials exposed in plowing were excavated and described by Miroir et al. (1973). Both were females associated with pottery vessels and glass trade beads. The remains reported on here are from the same part of the site as the individuals described in Miroir et al.'s (1973) report.

The human remains described herein are part of the Larry Head collection which is comprised of the archaeological remains of the Historic Nasoni Caddo occupation (see Perttula 2017). The material was collected following flooding of the site in 1990 and 1991. Dated tags and labels identified possible features seen in the field. Some indicated the scattered nature of finds and shed light on the difficulty in the field of associating bone material with specific burials. The remains have the appearance of a salvage or exposed collection, as numerous faunal elements were with the human remains. These were separated in the lab. The mixing of individuals is consistent with the movement of bone fragments following site inundation.

## Inventory

An inventory of the number of individuals and their skeletal elements is fundamental to osteological analysis because it establishes a base line for information on demography, genetics, health, and nutrition. When looking at the particular skeletal elements that are represented, biases in the data can be better discerned through an inventory. It was only through a detailed process of inventory examination that the mixed nature of the remains from this collection became apparent.

The human remains described herein had been collected in 1990-1991 and were separated into the catalog designations (dated tags with labels) that were presumed to be features. There were at least eight burial designations that may have represented perceived features in the field. The remains appear to represented the salvage of finds from the surface of the site. Remains included both human and animal remains, only the former of which are described here. Skeletal materials were fragmentary, and some did not allow for positive identification. A summary of the human skeletal remains is presented in Table 1.

Once the inventory process was completed, it became apparent that the individuals from different catalog designations, or possible features, were mixed. The mixing of burial designations was tested by gross examination and then the fitting together of two mandible fragments, one labeled 11, B3 and another labeled 12, B3 (see Table 1). It is possible that the "B" designation was the only pertinent information to be used for separating individuals; but some of the designations lacked a B at all, including 10A, 12, and 16. Additional doubt on the importance of the B designation came from the dental measurements and fitting of maxillary teeth from 12, vic. B4 in the maxilla from 12, B3. The fragmentary nature of the remains, multiple individuals contained in individual designations (10A and 16), and fitting together of individuals from different designations, led to a decision to treat the entire assemblage as commingled and incomplete.

When remains are comingled it becomes impossible to determine with certainty the number of individuals from a locality or site. Instead minimum numbers of individuals (MNI) are determined. The presence of two left mandibular second molars ($LM_2$) indicated a minimum of two adults in the collection. The $LM_2$ from 11, B1 is smaller and much less worn than the $LM_2$ from 12, vic. B4. The size difference in teeth corresponds to a size difference seen in individual skeletal elements in the assemblage.

## Demography

When recording comingled materials, age and sex information is collected on individual skeletal elements and these are compared to establish minimum numbers of individuals in demographic categories. Demographic information gained from skeletal elements increased the MNI to three for this set of human remains.

There is a limited degree of sexual dimorphism in the human skeleton that makes it difficult to determine sex in fragmentary comingled remains. Nevertheless, the remains indicate a minimum of one female and one male. In 12, B2, mandibular remains included a gonial angle but the fragment had a large angle, typical of females, and significant eversion which is associated with males. Also with these remains were diminutive clavicle and small femur fragments consistent with females or immature size. The skeletal fragments associated with 12, vic. B4 also had very small femoral remains and a very small patella. It is my belief that these fragments are all from the same individual based on the unusually small size of the remains. The isolated femoral head included with a tag that had eroded beyond legibility was determined to be male, based on diameter (Stewart 1979).

Skeletal remains that can be placed into refined age categories were placed into three maturity groupings: one young child/infant; one older adolescent/young adult; and one middle-aged adult. The juvenile remains were associated with designations: 10A; 11, B5; 12; and 16. Depending on age estimation technique employed, the teeth from 10A ranged from 0.69 to 2.37 years and those from catalog designation 12 ranged from 1.4 to 2.8 years (Baker et al. 2005; Liversidge et al. 1998;

**Table 1. Summary of Human Skeletal Elements from the Roseborough Lake Site (41BW5).**

| Bone | Designation | Side | Segment | Completeness |
|---|---|---|---|---|
| Frontal | 12, B3 | right | Supraorbital torus | 3 |
| Parietal | 16 | unsided | | 3 |
| Temporal | 11, B1 | unsided | | 3 |
| | 12, B3 | right | Petrous part | 3 |
| Occipital | 10A | unsided | Occipital condyle | 3 |
| | 11, B1 | unsided | Basioccipital | 3 |
| | 16 | unsided | | 3 |
| Maxilla | 12, B3 | left | Palatine process | 3 |
| Mandible | 10A | right | Body | 3 |
| | 11, B3 | right | Body | 3 |
| | 12, B2 | left | Gonial angle | 3 |
| | 12, B3 | right | Body | 3 |
| Cervical vertebrae | 12, B2 | | Neural arch and centrum | 1 |
| | 16 | | Neural arch | 2 |
| C1 | 12, B2 | | Neural arch | 2 |
| C2 | 10A | right | Neural arch | 2 |
| | 11, B1 | | Dens, anterior arch | 3 |
| Thoracic vertebrae | 11, B5 | unsided | Neural arch, superior articular facet | 3 |
| | 12, B2 | unsided | Neural arch and centrum | 3 |
| Sacrum | 12, B2 | unsided | | 3 |
| First rib | 12, B2 | unsided | Shaft | 3 |
| Humerus | 10A | right | Distal growth plate | 2 |
| | 11, B5 | unsided | Distal diaphysis | 3 |
| Ulna | 12, B2 | left | Proximal epiphysis | 2 |
| | 12, B3 | right | Proximal diaphysis | 3 |
| Lunate | 11, B1 | left | Complete | 1 |
| Metacarpal I | 11, B1 | left | Shaft, head | 1 |
| Metacarpal V | 11, B1 | right | Facets for hamate and metacarpal IV and shaft | 2 |
| Proximal phalanx (hand) | 16 | left | Diaphysis | 1 |

**Table 1. Summary of Human Skeletal Elements from the Roseborough Lake Site (41BW5), cont.**

| Bone | Designation | Side | Segment | Completeness |
|---|---|---|---|---|
| Clavicle | 11, B1 | left | Lateral end | 3 |
| | 12, B2 | right | Sternal end | 2 |
| | 12, B2 | right | Midsection | 3 |
| Scapula | 11, B3 | unsided | Glenoid fossa | 3 |
| | 12, B3 | right | Body | 3 |
| Illium | 12, B3 | left | Inferior gluteal line | 3 |
| Femur | 11, B1 | left | Distal diaphysis with medial and lateral condyles | 3 |
| | 11, B5 | left | Middle diaphysis | 1 |
| | 12, B2 | unsided | Middle diaphysis | 1 |
| | 12, vic. B4 | unsided | Middle diaphysis | 3 |
| | 16 | right | Proximal diaphysis | 2 |
| | Not identified – tag illegible | right | Head | 1 |
| Patella | 11, B1 | left | Nearly complete | 1 |
| | 12, vic. B4 | right | Lateral facet and partial medial facet | 2 |
| Tibia | 11B1 | left | Medial condyle and proximal diaphysis | 3 |
| Fibula | 12, B3 | unsided | Middle diaphysis | 3 |
| Talus | 12, B3 | left | Trochlea, lateral process | 3 |
| Intermediate cuneiform | 11, B1 | left | Nearly complete | 1 |
| Distal phalanx of metatarsal I | 11, B1 | left | Nearly complete | 1 |
| Dental remains | | | | |
| Deciduous second molar | 12 (no B number) | left | Crown and root | 1 |
| Deciduous first molar | 10A | right | Crown and root | 1 |
| Deciduous second molar | 10A | right | Crown and root | 1 |
| Maxillary second incisor | 16 | right | Crown and root | 1 |

**Table 1. Summary of Human Skeletal Elements from the Roseborough Lake Site (41BW5), cont.**

| Bone | Designation | Side | Segment | Completeness |
|---|---|---|---|---|
| Maxillary canine | 16 | right | Crown and root | 1 |
| Maxillary first premolar | 16 | right | Crown and root | 1 |
| Maxillary second premolar | 16 | right | Crown and root | 1 |
| Maxillary first incisor | 11, B1 | left | Crown and root | 1 |
| Maxillary first molar | 12, vic. B4 | left | Crown and root | 1 |
| Maxillary second molar | 12, B3 | left | Crown and root | 1 |
| Mandibular third molar | 11, B1 | left | Crown and partial root | 2 |
| Mandibular second molar | 11, B1 | left | Crown and root | 1 |
| | 12, vic. B4 | left | Crown and root | 1 |
| Mandibular first premolar | 12, B2 | left | Crown and root | 1 |
| Mandibular second premolar | 12, B2 | left | Crown and root | 1 |
| Mandibular first incisor | 11, B1 | right | Crown and root | 1 |
| Mandibular second premolar | 12, B3 | right | Crown and root | 1 |
| Mandibular first molar | 12, B3 | right | Crown and root | 1 |
| Mandibular second molar | 11, B3 | right | Crown and root | 1 |
| Mandibular third molar | 11, B3 | right | Crown and root | 1 |

Because remains are mixed, the table is organized by bone rather than by Feature or Burial. Completeness scores follow Buikstra and Ubelacker (1994) where 1 is at least 75 percent of the segment is complete, 2 is between 25-75 percent, and 3 is less than 25 percent complete.

Moorrees et al. 1963; Ubelacker 1978). Estimates based on epiphyseal fusion and size suggest an age of around 3-4 years for catalog designation 11, B5 (Baker et al. 2005; Maresh 1970; Schafer et al. 2009) for the femur, tibia, and phalanx. From designation 16, size and epiphyseal fusion suggest an age of 1-2 years for the metacarpal and less than 4 years for the cervical vertebra fragments. It is not possible to determine if the juvenile remains represent more than one infant/young child.

Dental wear patterns were compared to those from the Sanders (41LR2) and Mitchell (41BW4) sites on the Red River (Wilson 1997) and they indicate that the teeth from catalog designation11, B1 are likely from an individual aged 15-29 year at the time of death. The dental remains from 12, B2 overlap in age with an estimate of 20-49 years. Clearly older remains are indicated in the dental wear of catalog designation 11, B3 with an estimate of 30+ years and 40+ years for designations 12, B3, 12 vic. B4, and 16. It is not possible to determine if the adult remains represent more than two individuals.

## Taphonomy

Taphonomy is the study of postmortem changes to skeletal remains. It involves systematic examination of the surface texture, color, shape, and presence of bone. It is imperative that archaeologists be able to identify human agency as a separate process from geological and biological agency in the depositional history of artifacts and human remains in order to accurately interpret the archaeological record. Cultural behaviors include the treatment and ultimate disposal of the dead such as cremation. Environmental effects include the other elements that impact human remains, such as exposure to sunlight, water, and soil. Taphonomic documentation can also be used to examine preservation techniques by serving as a baseline for future observations.

Skeletal preservation in Northeast Texas is often described as poor, but less often are specific taphonomic processes noted in analyses. Gill-King (1999) attributed destruction of the remains from the Hurricane Hill site (41HP106) to humic soils, recurring wetting and drying, and root etching. Derrick and Steele (1993) noted evidence of rodent gnawing and root etching in the remains from the Tick (41DT6) and Spike (41DT16) sites. Etching from plant residues, sun exposure, rodent knawing, and pot hunting are among the taphonomic processes described by Derrick et al. (2008) from the Roitsch site (41RR16) on the Red River. A lack of remains from the Lang Pasture site (41AN38) is attributed to the acidic soil in which remains were interred (Wilson 2011).

Preservation in the Roseborough Lake site human remains ranged widely and indicated that the remains were exposed to different environmental impacts. Bone breaks all occurred when the bone was dry from indeterminate forces, likely a combination of subsurface disturbances from plowing and water transport, excavation, and storage breakage. Curved, transverse, and longitudinal fractures were observed.

There was little evidence of cultural modification of the remains, with no evidence of burning or cut marks. Biological modification was minimal. There was no evidence of rodent, carnivore, or artiodactyl activity. Minimal insect boring was observed on a few of the skeletal remains associated with catalog designations: 11, B1; 11, B5; 12, B2; and 16. Dendritic rootlet outlines formed a minimal but observable destruction in many of the skeletal remains.

Warpage, though expected, was not observed in the collection, but this may be a result of the small size of the fragments. Warping from repeated wetting and drying was expected from the site, but it is easier to detect in larger cranial fragments. Carbonate adherence was not observed, but soil

was present on many bone fragments. The distinctive red soils of Northeast Texas often stain bone a reddish-brown color. The remains from the Roseborough Lake site were stained in this typical manner, with most fragments recorded on the Munsell color chart as 5YR 5/4 (reddish-brown). A few fragments were darker and recorded as 5YR 5/6 (yellowish-red).

Surface texture of the human remain ranged from minimal destruction to the complete loss of the original bone surface and indicated that the bone had been exposed to a variety of destructive environmental forces. A long bone fragment from catalog designation 10A had completely lost the cortical surface from what looks like water exposure. A femoral fragment from designation 12, B2 had portions of the surface that were chalky in appearance as though it had reacted with something acidic. Some of the bones had evidence of surface sunlight exposure in the form of bleaching. There was little evidence of abrasion or depositional transport. The lack of abrasion may be the result of minimal movement of materials through time and/or fine-grained, soft sediment. There was only minimal spalling of the bone surface. Some pitting was observed from soil acidity.

## Cultural Modification and Paleopathology

The Caddo practiced several forms of body modification, of which cranial modeling is seen in skeletal remains. Unfortunately, cranial remains were too fragmentary to determine if modeling might have been present in the remains from the Roseborough Lake site.

Some pathological bone response was observed but it was impossible to determine a precise cause or condition because the remains were incomplete and individuals were combined. Hypervascular bone formation was observed in the fovea capitis and neck of the right femur with the illegible catalog tag. This has resulted in an abnormally shallow fovea capitis. Such bone formation can occur in femoral head necrosis and when there is reduced movement of the femur, but the head shows no sign of degenerative changes. Another cause is a hemotogenic osteomylitis, although this is more common in children than adults.

Some of the juvenile remains had abnormal endosteal bone formation with visible lamellae. The cause of this bone formation is unknown. It was observed on long bone fragments from catalog designation 11, B1 and a left femur as well as unidentified long bone fragments from designation 11, B5. On the femur, the cortical bone is highly vascular, appearing to have pores, while there is active trabecular bone deposition that is narrowing the medullary cavity. Toward the proximal end there is cortical thinning, while toward the distal end there is thickening. Surface porosity is present on the small right patella at the anterior margin of the lateral condyle from 12, vic. B4. This observation is fairly common and likely the result of mild arthritis in the knee.

## Population Affinities

The study of nonmetric or discrete traits has a long history of use for population comparison. Nonmetric traits can be particularly useful because they can be recorded in incomplete and even poorly preserved remains. The problem is that in fragmentary collections such as this, only a few observations will be possible. From the Roseborough Lake site remains examined here, only dental traits were observed and these are recorded in Table 2.

While there is no reason to suspect that there were French individuals buried at the Roseborough Lake site, it is important to try to determine features of ancestry found in the human remains from

**Table 2. Discrete Dental Traits in the Roseborough Lake Site (41BW5) Human Remains.**

| Designation | Trait | Tooth | Score |
|---|---|---|---|
| 16 | Peg-shaped Incisor | $RI^2$ | 0 |
| 16 | Premolar Root Number | $RP^1$ | 1 |
| 11, B1 | | $LP^1$ | 1 |
| 12, B2 | | $LP_1$ | 1 |
| 11, B1 | Groove Pattern | $LM_3$ | Y6 |
| 11, B1 | | $LM_2$ | +4 |
| 11, B1 | Cusp Number | $LM_3$ | 6 |
| 11, B1 | | $LM_2$ | 4 |
| 11, B1 | Protostylid | $LM_3$ | 0 |
| 11, B1 | | $LM_2$ | 0 |
| 11, B1 | Cusp 5 | $LM_3$ | 5 |
| 11, B1 | | $LM_2$ | 0 |
| 11, B1 | Cusp 6 | $LM_3$ | 3 |
| 11, B1 | | $LM_2$ | 0 |
| 11, B1 | Cusp 7 | $LM_3$ | 0 |
| 11, B1 | | $LM_2$ | 0 |
| 11, B1 | Molar Root Number | $LM_2$ | 2 |
| 12, B2 | | $LM_2$ | 3 |
| 11, B3 | | $RM_2$ | 1 |
| 11, B3 | | $RM_3$ | 1 |

Dental traits were collected following procedures and reference plaques described in Turner et al. (1991).

the Head Collection. Since the prior described burials were believed to be Native American (Miroir et al. 1973), the remains are likely Nasoni Caddo based on associated grave goods and artifactual evidence from the site (see Perttula 2017). In this study, it is possible to use shovel-shaped incisors to distinguish Native Americans from Europeans. Shovel shaping is present on the maxillary left central incisor from catalog designation 11, B1. The specific type of shoveling (Turner 1979) could not be recorded in Table 2 due to normal dental attrition. The shape of the maxillary right lateral incisor from 16 was suggestive of shovel shaping, but it was heavily worn. Dental remains, therefore, indicate that at least one adult was Native American.

## Body Size

Size is the result of genetics, the quantity and quality of the diet, and overall health. An unusually small size was noted in some of the remains associated with designations 12, B2, and 12, vic. B4. Unfortunately, the fragmentary nature of the remains made it impossible to quantify the size of these remains in a meaningful way.

Although it was not possible to take standard osteological measurements on the human bones present, dental measurements are provided in Table 3. Teeth, like other parts of the body, reflect general body size. Many of the teeth were too worn to be measured at the crown but measurements at the cervical margin could be taken. Differences in sizes were less apparent at the cervical margin. Little difference in size was seen in the two mandibular left second molars. Dental metrics on juvenile remains were useful in determining age at death (Liversidge et al. 1998).

**Table 3. Dental Measurements from Human Remains at the Roseborough Lake Site (41BW5).**

| | | Designation | Crown | | | Cervical Margin | | Root Length |
|---|---|---|---|---|---|---|---|---|
| | | | Mesio-Distal | Buccal-Lingual | Height | Mesio-Distal | Buccal-Lingual | |
| Permanent Dentition | | | | | | | | |
| Maxillary | RP2 | 16 | | | | 5.42 | 5.83 | 14.85 |
| | RP1 | | | | | 4.53 | 7.89 | 17.90 |
| | RC | | | | | | 8.55 | 10.60 |
| | RI2 | | | | | 4.74 | 7.96 | 10.58 |
| | LI1 | 11, B1 | 8.11 | 2.36 | 11.96 | 6.48 | 7.44 | |
| | LP1 | | 8.71 | 6.86 | 6.97 | 4.99 | 7.88 | 15.73 |
| | LM1 | 12, vic. B4 | | | | | 10.67 | 13.02 |
| | LM2 | 12, B3 | | | | 8.62 | 10.00 | |
| Mandibular | LM3 | 11, B1 | 11.93 | 11.21 | 7.96 | 9.85 | 10.44 | |
| | LM2 | | 10.69 | 9.95 | 6.87 | 8.78 | 8.48 | 12.99 |
| | | 12, vic. B4 | | | | 8.97 | 8.51 | |
| | LP2 | 12, B2 | | | | 5.31 | 7.06 | 12.98 |
| | LP1 | | | | | 5.08 | 7.31 | 13.31 |
| | RI1 | 11, B1 | | | | 3.08 | | |
| | RP2 | 12, B3 | | | | 5.31 | 6.98 | |
| | RM1 | | | | | 8.74 | 8.94 | |
| | RM2 | 11, B3 | | | | 8.82 | 8.82 | 11.92 |
| | RM3 | | | | | 8.42 | 8.26 | 9.67 |
| Deciduous Dentition | | | | | | | | |
| Mandibular | LM2 | 12 | 10.37 | 9.19 | 6.61 | 7.77 | 8.01 | |
| | RM1 | 10A | 7.89 | 8.64 | 6.40 | 7.36 | 7.06 | |
| | RM2 | | 10.33 | 9.14 | 6.23 | 8.55 | 7.39 | |

Measurements are presented in millimeters. Dental wear precluded crown measurements in many cases. Crown measurements on the deciduous second molars suggest that the teeth from 10A and 12 may be from the same individual. Root lengths are not taken for the deciduous teeth because roots are not complete.

## Diet and Dental Health

Populations from Northeast Texas that date after ca. A.D. 800/850 are affiliated with ancestral Caddo groups. Prior to that time, Woodland period populations relied on gathered and hunted foods. Caddo populations were maize horticulturalists. In studies that compared proto-Caddo adaptations with Caddo adaptations, higher caries rates were found in the Caddo populations than in the preceding Woodland period populations who relied on gathered foods more (Burnett 1990; Powell 1985; Rose et al. 1984).

This high rate of dental caries in the Roseborough Lake population is consistent with a soft, maize-based diet. Reliance on maize provides a sticky carbohydrate staple favorable to cariogenic microbial attack. Of the 21 teeth from the Roseborough Lake site, 13 had caries (62 percent)and a total of 20 dental caries were observed in the carious teeth. A range of 8 to 25 percent carious teeth has been used to identify maize agricultural populations (Turner 1979; Cohen and Armelagos 1984; Powell 1985). The percentage of teeth with caries is high compared to other Caddo sites in Northeast Texas, and likely a result of the small number of teeth recovered. An interesting similarity in caries location is seen in the Mitchell site (41BW4). In the nearby Mitchell site, where 91 percent of the individuals had dental caries, but only 23 percent of the teeth exhibited cavities (Wilson 1997) an unusually high frequency of caries in anterior teeth was observed. Of the four anterior teeth present at the Roseborough Lake site, three teeth had five caries. These included an LI1 from 11, B1 with a distal interproximal lesion and four dental caries from catalog designation 16, mostly interproximal on the RC1 and RI2 (Table 4). While a high percentage of carious teeth is typical of the Caddo, caries in the incisors and canines are relatively rare.

Dental caries were present on five of the nine deciduous teeth. There were a total of seven caries on these deciduous teeth. All were located on the occlusal surface or natural pit and groove features. They appear to be nursing caries and/or due to weakened enamel. The lack of wear and calculus deposits on the teeth suggest that weaning was either recent or had not yet occurred.

Dental attrition is related to age of the individual and the amount of grit in the diet. The Caddo had a relatively low amount of introduced sand in their diet as much of the grinding was done using wooden tools, rather than stone. Dental attrition was assessed using standard techniques: Scott's (1979) technique for recording enamel wear on molars and Smith's (1984) technique for premolars, canines, and incisors. Scott's (1979) technique divides the occlusal surface into quadrants and is based on the summing of scores from zero to 10 for each quadrant. Smith's (1984) is a scale from one to eight based on the amount of exposed dentin. Dental wear scores on individual teeth were compared to age-based curves from the Sanders and Mitchell sites in an attempt to determine the age at death for skeletal remains from the Roseborough Lake site. These scores are presented in Table 4 and show a clear division that supports a minimum number of two adults in the population.

Only five teeth were in fragmentary jaw remains. The rest were loose. Infection, or dental abscess, and alveolar resorption are determined only by examining teeth that are in occlusion. The teeth that were in mandible fragments were two deciduous teeth from catalog designation 10A and a maxillary molar and mandibular premolar and molar from catalog designation 12, B3. No evidence of dental abscess was observed. Alveolar resorption is recorded for permanent teeth and was slight on the teeth from 12, B3.

**Table 4. Dental Wear and Caries in the Human Remains from the Roseborough Lake Site (41BW5).**

| | | Designation | Wear score | Wear Score | Dental caries |
|---|---|---|---|---|---|
| | | | Smith (0-8) | Scott (0-40) | |
| Maxillary | RP2 | 16 | 6 | | |
| | RP1 | | 6 | | 1: mesial |
| | RC | | 7 | | 2: distal, 1 cervical margin |
| | RI2 | | 6 | | 2: distal |
| | LI1 | 11, B1 | 2 | | 1: distal |
| | LP1 | | 2 | | |
| | LM1 | 12, vic. B4 | | 31 | 1: distal, cervical margin |
| | LM2 | 12, B3 | | 20 | 1: mesial, cervical margin |
| Mandibular | LM3 | 11, B1 | | 4 | |
| | LM2 | | | 8 | 1: occlusal, cervical margin |
| | | 12, vic. B4 | | 21 | 1: buccal |
| | LP2 | 12, B2 | 5 | | 1: occlusal |
| | LP1 | | 5 | | |
| | RI1 | 11, B1 | 4 | | |
| | RP2 | 12, B3 | 6 | | |
| | RM1 | | | 35 | |
| | RM2 | 11, B3 | | 27 | 1: buccal |
| | RM3 | | | 18 | 3: occlusal |

Wear is given according to Scott's (1979) technique for molars and is a score out of 40; for premolars Smith's (1984) technique is also used and is a score out of 8. Recorded scores can be divided into moderate wear (16; 12, vic. B.4; 12, B2; 12, B3; and 11, B3) and slight wear (11, B1). The number of dental caries is given followed by location on the tooth crown unless noted as cervical margin.

Also consistent with a soft and relatively grit-free diet was the consistent presence of dental calculus. Calculus is calcified plaque and builds up when there are few abrasives in the diet to cleanse the teeth. Most of the adult teeth had a slight amount of dental calculus at the cervical margin, or at the approximate gum line during life. No obvious difference in the amount of calculus was observed among the teeth.

Teeth were also examined for the presence of hypocalcification, enamel hypoplasia, hypercementosis, and cultural modification. None of these were seen in the remains from the Roseborough Lake site. One occlusal fracture was seen in $LM^1$ from 12, vic. B4. The edges of this break indicate a pre-mortem chipped tooth.

## Summary and Conclusions

The remains described in this article are from the Head collection at the Roseborough Lake Site (41BW5) and are consistent with descriptions of a salvage collection effort (see Perttula 2017). Human remains were mixed and incomplete. Despite the fragmentary and mixed nature of the skeletal remains from the site that were examined, some conclusions can be made about the individuals represented.

The remains described here are from the same part of the Roseborough Lake site where ancestral Caddo burials were excavated, and the present remains may come from a larger cemetery. There were at least two adults and one young child represented by the human remains. One of the adults was male and one, likely female. The ages differed as well, with at least one young and one middle-aged to older adult. Osteoarthritis in the knee was a further indication that at least one individual lived into at least middle age adulthood. Dental attrition also fell into two distinct groups. While a difference in size of the postcranial remains was observed, the dental measurements were similar.

Archaeological evidence from the site indicates that an Early Historic Caddo component and an associated French occupation (Gilmore 1986; Miroir et al. 1973; Wedel 1978) were present at the Roseborough Lake site and that the ancestral Caddo component is Nasoni. The specific skeletal and dental anomalies from this collection may be the result of sample size, individual variation, and the biological effects of cultural upheaval in Early Historic times. These include the high percentage and distribution within the dental arcade of caries, the small size of some of the skeletal remains, and demographic skewing caused by the presence of at least one infant/young child in so small a population. The diminutive size of one individual stands out and may be the most noticeable result of the stress experienced by many Native American populations during the Early Historic period.

## References Cited

Baker, B. J., T. L. Dupras, and M. W. Tocheri

2005 *The Osteology of Infants and Children*. Texas A & M University Press, College Station.

Buikstra J., and D. Ubelaker (editors)

1994 *Standards for Data Collection from Human Skeletal Remains*. Research Series No. 44. Arkansas Archeological Survey, Fayetteville.

Burnett, B. A.

1990 The Bioarchaeological Synthesis of the Eastern Portion of the Gulf Coastal Plain. In *The Archeology and Bioarchaeology of the Gulf Coastal Plain: Volume 2*, by D. A. Story, J. A. Guy, B. A. Burnett, M. D. Freeman, J. C. Rose, D. G. Steele, B. W. Olive, and K. J. Reinhard, pp. 385-418. 2 Vols. Research Series No. 38. Arkansas Archeological Survey, Fayetteville.

Cohen, M. N. and G. J. Armelagos (editors)

1984 *Paleopathology at the Origins of Agriculture*. Academic Press, New York.

Derrick, S., G. R. Colby, and D. G. Steele

2008 Analysis of Human Remains from the Arnold Roitsch Site. In *Collected Papers from Past Texas Archeological Society Summer Field Schools*, edited by T. K. Perttula, pp. 413-432. Special Publication No. 5. Texas Archeological Society, San Antonio.

Derrick, S. and D. G. Steele

1993 Analysis of Human Remains from 41DT6 and 41DT16. In *Excavations at the Tick, Spike, Johns Creek, and Peerless Bottoms Sites*, by R. C. Fields, E. F. Gadus, L. W. Klement, C. B. Bousman, and J. B. McLerran, pp. 186-271. Reports of Investigations No. 91. Prewitt and Associates, Inc., Austin.

Gill-King, H.

1999 Human Skeletal Remains: Pathological and Dietary/Nutritional Aspects. In *The Hurricane Hill Site (41HP106)*: *The Archaeology of a Late Archaic/Early Ceramic and Early-Middle Caddoan Settlement in Northeast Texas*, edited by T.K. Perttula, pp. 329-343. Special Publication No. 4. Friends of Northeast Texas Archaeology, Pittsburg and Austin.

Gilmore, K.

1986 *French-Indian Interaction At an 18th Century Frontier Post: the Roseborough Lake Site, Bowie County, Texas*. Contributions in Archeology No. 3. Institute of Applied Science, North Texas State University, Denton.

Liversidge, H. M., B. Herdeg, and F. W. Rosing

1998 Dental age estimation of non-adults. A review of methods and principles. In *Dental Anthropology, Fundamentals, Limits and Prospects*, edited by K. W. Alt, F. W. Rosing, and M. Teschler-Nicola, pp. 419-442. Springer, Vienna.

Maresh, M. M.

1970 Measurements from roentgenograms. In *Human Growth and Development,* edited by R. W. McCammon, pp. 157-200. Charles C. Thomas, Springfield, Illinois.

Miroir, M. P., R. K. Harris, J. C. Blaine, and J. McVay, with the collaboration of D. C. Book, F. Cigainero, R. McVay, J. B. Raffaelli, Jr. and P. E. Schoen

1973 Bénard de la Harpe and the Nassonite Post. *Bulletin of the Texas Archeological Society* 44:113-168.

Moorrees, C. F. A., E. A. Fanning, and E. E. Hunt

1963 Age variation of formation stages for ten permanent teeth. *Journal of Dental Research* 42:1490-1502.

Perttula, T. K.

2017 The Historic Caddo Component at the Roseborough Lake Site (41BW5) on the Red River in Bowie County, Texas. *Journal of Northeast Texas Archaeology* 74:1-43.

Powell, M. L.

1985 The Analysis of Dental Wear and Caries for Dietary Reconstruction. In *The Analysis of Prehistoric Diets*, edited by R. I. Gilbert Jr. and J. H. Mielke, pp. 307-338. Academic Press, Orlando.

Rose, J. C., M. M. Nassaney, and M. Blaeuer

1984 Paleopathology and the Origins of Maize Agriculture in the Lower Mississippi Valley and Caddoan Culture Areas. In *Paleopathology at the Origins of Agriculture*, edited by M. C. Cohen and G. J. Armelagos, pp. 393-424. Academic Press, New York.

Schafer, M., S. Black, and L. Scheuer

2009 *Juvenile Osteology: A Laboratory and Field Manual*. Elsevier, Burlington, Massachusetts.

Scott, E. C.

1979 Principal Axis Analysis of Dental Attrition Data. *American Journal of Physical Anthropology* 51:203-211.

Smith, B. H.

1984 Patterns of Molar Wear in Hunter-Gatherers and Agriculturalists. *American Journal of Physical Anthropology* 63:39-56.

Stewart, T. D.

1979 *Essentials of Forensic Anthropology Especially as Developed in the United States*. Charles C. Thomas, Springfield, Illinois.

Turner, C. G., II

1979 Dental Anthropological Indications of Agriculture Among the Jomon People of Central Japan. *American Journal of Physical Anthropology* 48:101-106.

Turner, C. G., II, C. R. Nichol, and G. R. Scott

1991 Scoring Procedures for Key Morphological Traits of the Permanent Dentition: The Arizona State University Dental Anthropology System. In *Advances in Dental Anthropology*, by M. A. Kelley and C. S. Larsen, pp. 13-31. Wiley-Liss, New York.

Ubelaker, D. H.,

1978 *Human Skeletal Remains: Excavation, Analysis, Interpretation*. Taraxacum, Washington, D.C.

Wedel, M. M.

1978 *LaHarpe's 1719 Post on the Red River and Nearby Caddo Settlements*. Bulletin No. 30. Texas Memorial Museum, The University of Texas at Austin.

Wilson, D.

1997 Dental Paleopathology in the Sanders and Mitchell Populations. *Bulletin of the Texas Archeological Society* 68:147-160.

2011 Analysis of Human Remains from the Lang Pasture Site. In: *Archeological Investigations at the Lang Pasture Site (41AN38) in the Upper Neches River Basin of East Texas*, assembled and edited by T. K. Perttula, D. B. Kelley, and R. A. Ricklis, pp. 381-401. Report 129. Texas Department of Transportation, Environmental Affairs Division, Archeological Studies Program, Austin.